November 1999

Center for Sustainable Agricultural Systems Newsletter, November/December 1999

Center for Sustainable Agricultural Systems

University of Nebraska-Lincoln

November-December, 1999 Newsletter

Conference Shows Large Interest in Small Farms

According to the USDA criterion, a small farm has less than $250,000 gross annual income. In the U.S., these farms hold 75% of all assets and 72% of all land, and they produce 41% of all farm receipts. The profile in Nebraska is similar, although our family farms tend to have more acres and larger equipment. Small farms have provided the families, the support for schools and businesses, and the backbone of rural communities. The classical Goldschmidt study of communities in California in the 1940s showed the much higher quality of life in a community of small, privately-owned farms (Dinuba) compared to that in a community surrounded by large, corporate farms (Arvin). The same structure and social consequences are equally important 50 years later in that place.

The Second National Small Farm Conference in St. Louis (October 12-15) this year explored both the current contributions and the future potential of small farms in the U.S. The recent USDA report "A Time to Act" listed several principles that should guide small farm development:

- produce safe, healthy, and diverse foods

- connect farmers with consumers

- promote rural communities

- encourage natural resource stewardship

- live in a safe and responsible environment

- support competition in free markets

- allow people to own farms

- generate family income comparable to other economic sectors

These principles provide a stark contrast to the singular profit motive of corporate, industrial agriculture. In conclusion, the report states that "Small farms are the most entrepreneurial and possibly the most innovative in U.S. agriculture."

Secretary of Agriculture Dan Glickman reported to the conference that small farmers were at the top of the USDA agenda, that the agency is enhancing rural development efforts through small farms, and that small farm owners must share in the general prosperity of the U.S. Under Secretary Miley Gonzalez added the importance of education as well as new products and new uses in agriculture.

In a keynote presentation, John Ikerd from Missouri described the takeover of agriculture by corporate agribusiness, a process driven by greed and the final step in industrialization. He cited the concentration of wealth in a few corporations and how this led to deterioration of both natural and human resources. "Industrialization is not good for farmers and is not good for the environment," according to Ikerd. In a call to action, he said the time for quietness is past, and that a post-industrial agriculture would be built on small scale, site-specific management and solutions, local ownership, and local markets. Ikerd insisted that small farms are the only viable route to equity and participation in the fruits of agriculture, and a system built on individual ownership and management with a large number of small farmers and business people is the one in which a free market will flourish while benefiting local people. He said that the current banner is sustainability.

The Small Farm Conference brought together more than 400 people with interest in small scale, entrepreneurial agriculture. It was obvious from the displays that federal and other public agencies have a large interest in the small farm sector, and that the non-profit organizations are among the most active and useful in this arena. The universities have much to contribute, but thus far have spent most of their energies developing technologies for a large-scale, industrial model. Many speakers at the conference asked for a change in land-grant research and education priorities toward smaller, more sustainable farms and the appropriate technologies to make them profitable.

Submitted by Chuck Francis

University Role in Biotechnology: What Do People Say and Why?

Sixth in a Series. There is growing debate about the emerging role of universities in research and applications of biotechnology. Current interest and investment in production and use of genetically modified organisms (GMOs) have sparked a revolution in university research laboratories and fields. Perhaps no single set of new techniques and potential technologies has caused such a substantial short-term shift in focus of people and resources in universities. We hope that encouraging debate within the university community and among our clients will help inform people of the issues and aid in charting a rational strategy for the future.

Perspectives from the Midwest

Through this series we have discussed many of the basic causes for debate on the issue of transgenic crops: ownership of germplasm, potentials for gene escape, food safety, economics and who benefits, consumer attitudes, and impacts on agriculture and communities. The debate continues to grow, often focused on the issue of labeling, preserving identity of non-GMO grains, and economics of using these technologies. There is great concern among farmers who planted hybrids and varieties that included this new technology and who paid a premium for seed, only to find that they must now sell the product for a lower price.

Some people in the system call for labeling so that consumers can make informed choices in their food purchases. Others maintain that we just need better education on the safety and contributions of GMO-based crop products--to negate the unfounded fears in what they consider an obviously valuable new technology. Many in the U.S. seed industry are quick to blame the European consumer and politician for creating barriers to trade. Organic farmers and food advocates insist that this technology is both dangerous and unnecessary. Most consumers are confused about the issues, even if they have read articles and seen TV bytes about the debate. How do we sort out all the information we hear, and what do different people in the food system say about new, genetically engineered crops and foods? And why?

First we must assume that people say what they believe--any other interpretation would be second guessing their motives and usually would be pure speculation. It seems rational to examine what is said about crops and products derived from transgenic-based technologies, consider the source and vested interest behind that source, and then try to make sense of what is happening. Ultimately, the consumer will determine the success of any new food or other technology, and educators can contribute to making that decision an informed one. The following are paraphrased quotes from personal interviews, along with my comments and interpretations.

Dean in a College of Agriculture: "The university has been relatively silent about GMOs, and it is time for knowledgeable faculty to share their expertise to help shape informed public policy. We cannot be biased, but we can provide information about the usefulness and safety of GMO crops to allow the public to make an enlightened decision for themselves." This administrator is a well-informed scientist, a person who understands genetics and some implications of technology, and is responsible for helping other scientists find research support from industry and government. A bias is clear when there is no mention of non-utility and potential dangers of the technologies--the statement appears to be advocacy rather than education.

Conventional Farmer in the Midwest: "This is a good type of technology, one that helps me to farm more responsibly with fewer chemicals on more acres. We don't want to go back to old systems." The farmer is convinced of the production benefits of GMO crops, and would not appreciate any interference in the availability of a new technology that makes the operation more efficient and stable.

Alternative Crop Farmer: "There is a premium paid today for non-GMO crop products, and this is something that we should be able to take advantage of." This farmer is not convinced of the value of the new GMO hybrids, and chooses to stay with standard seed rather than pay the higher price for new seed hybrids. Now it could be rewarding to sell what the market wants: a product without the GMO technology.

Food Processor: "How can you really guarantee that a product is completely free of GMO grains? There are tests available, but they are too expensive and unreliable." Here the complexity of GMO technology and products becomes relevant. Unlike foods that are evaluated by appearance, quality, and uniformity, we see the effects of an industrial and global industry based on regulation and control.

Elevator Operator in Midwest: "This will be an incredible hassle to separate and maintain identity of different grains. We are not prepared for this, and the costs of such an investment in facilities would have to be charged to the farmer and eventually the consumer." The costs and inconvenience faced by many in the grain trade far outweigh the opportunities for unique identity and marketing niches for new products.

Non-Profit Group Director: "The entire GMO industry is anti-small farm, and this technology promotes the industrial approach to agriculture." The impacts of a specific new technology are seen as symptomatic of changes in the structure of agriculture, resulting in a loss of small family farms and the strength that they bring to communities. Although the new varieties are not the only causal factor, they are an obvious high-profile example of what many consider to be scale-specific technologies from research that provides yet another advantage to an industrial-model farm.

European Cereal Breeder: "The terminator gene could prevent cereals from sprouting in the ear or head; that would be an advantage to farmers who are faced with rain and high humidity during the harvest period." This answer typifies the discipline-specific thinking with which we currently approach research and new technologies; we think in terms of a single cause, a single effect, and a technology that can solve that single problem.

European Ecological Agriculture Scientist: "Why do we need this technology, and who will benefit from its use? As I see it, transgenic crosses are not a natural process, and GMOs seem to move more control over agriculture to the multinational corporations." Here is a holistic and critical view of the new technology, and a suggestion that wider issues are important even as we evaluate the potential impacts of single technologies.

Urban Consumer in U.S.: "I've seen plenty of publicity and controversy about the GMO issue, but I really don't understand what people are saying. If the government agencies say that this is safe, I assume that it is. Why not shop for cheap food as long as it looks good?" The average consumer in this country is not concerned about food safety, other than reading about some of the more spectacular problems when there is a well-publicized outbreak of food poisoning. People generally believe and trust the government as well as commercial food companies.

Urban Consumer in Europe: "It's hard to trust the government. Just look at the mad cow disease in England! And when multinational corporations come in with cheap food, this leads to loss of culture as well as business for local shops." A much different attitude seems to prevail in Europe about what is safe, what is nutritious, and what is culturally acceptable. Organic food consumption is much higher in several of the northern European countries, compared to the U.S., and there are multiple reasons for this difference, one of which is avoidance of food containing GMOs.

What is the university's role?

As stated by the dean in the first example, our main goal is education. As a public institution, we design programs for the public good--as perceived by each individual instructor or Extension educator. Individuals in the public domain have opinions, specific experiences in their own education and training, and personal connections with groups inside and outside their organizations. When sorting out the different messages about GMOs from a plethora of sources, including universities, it is essential to consider the qualifications and the vested interests behind those sources, and who will gain from society's acceptance of a given opinion or information source.

In universities, we write grant proposals and seek support for research and teaching beyond what is available from our state employers. As a university researcher, I can best serve the public good by getting more funds to do more and better research. Yet this process also puts me in a position of considering the grant source and their opinions about technologies--an especially critical factor if that source is a company involved in developing and marketing GMO crops. It is no easy task for people to sort out the many conflicting reports about the positive potentials and serious possible consequences of these new technologies. An informed and objective debate is the best possible avenue to rational decisions by society for the future.

Submitted by Chuck Francis

Editor's Note: The UNL Institute of Agriculture and Natural Resources has formed a nine- member *ad hoc* task force to address current public issues related to biotechnology. It is chaired by Dr. Anne Vidaver, director of the UNL Center for Biotechnology and head of the Department of Plant Pathology; Dr. Darrell Nelson, Agricultural Research Division Dean and Director, will serve as the administrative liaison for the task force. The group is to: "develop a plan for communicating factual information regarding the benefits and risks of producing biotechnology-enhanced plants and animals for human food; develop a series of letters to the editor and/or opinion/editorial documents that are scientifically correct and address the major issues raised by opponents of biotechnology; and work with CIT (communications unit) to disseminate information to newspapers and magazines and through a special IANR Web site."

Loss of Biodiversity a Growing Concern

Crop improvement is based on access to a wide range of genes, for resistance to insects and pathogens, for stress tolerance, and for quality traits. The high-yielding varieties and

hybrids we use in Nebraska are the result of crosses with land races or wild relatives of current crops. When we lose farmers' original varieties or habitat for wild ancestors, or fail to preserve these materials in our germplasm banks, the long-term effect will be a compromising of future potential for improving crops.

"Biotechnology is no solution to this loss of genetic diversity," according to John Tuxill in a recent report from Worldwatch Institute. "We are increasingly skillful at moving genes around, but only nature can create them. If a plant bearing a unique genetic trait disappears, there is no way to get it back."

The gene banks maintained in Fort Collins by USDA and numerous other banks around the world attempt to maintain collections of most important food crops. These banks are poorly funded, and some gene sources are lost while waiting in boxes to be catalogued and stored. Botanical gardens, seed savers' networks, and other private initiatives are trying to help save this inheritance to provide a rich genetic resource to future generations. In addition to importance for agriculture, genetic diversity is critical as a source of new medicines. Current moves toward globalizing the food system, homogenizing diets and food sources, and concentrating ownership in a few multinational corporations all emphasize short-term profits at the expense of long-term sustainability. This should be a concern to all Nebraska citizens.

Submitted by Charles Francis

Resources

Nature's Cornucopia: Our Stake in Plant Diversity, $5. Widespread losses of plant species and varieties are eroding the foundations of agricultural productivity and threatening other plant-based products used by billions of people worldwide, reports a new study by the Worldwatch Institute. See http://www.worldwatch.org/pubs/paper/148.html.

USDA Economic Research Service has a Farm Structure Research Program that identifies, measures, and analyzes forces contributing to current farm structure and farm structural change, investigates the role and future of small farms, examines efficiency/size relationships in major U.S. farming subsectors, measures farm enterprise cost structure, level and distribution, quantifies farm diversification, and advances analytical tools for conducting farm structure and performance research and analysis. For more information, see http://www.econ.ag.gov/briefing/farmstructure/index.htm.

Organic Farming and Marketing Research: New Partnerships and Priorities. Free. Proceedings of October 1998 conference sponsored by Organic Farming Research Foundation, USDA and Wallace Institute for Alternative Agriculture. Focuses on current status and future prospects for organic agricultural research and education within USDA and elsewhere. Includes text of presentations on research needs from farm inspector's

perspective, data needs of the organic industry, international issues pertaining to organic agriculture, and more. OFRF, PO Box 440, Santa Cruz, CA 95061, 831-426-6606, research@ofrf.org, http://www.ofrf.org/.

The Nebraska Cooperative Extension has a new Web site, ruralroutes.unl.edu. It is designed to help farmers and ranchers and rural communities maneuver through today's changing agricultural economy and includes the following categories: marketing, finances, stress and change, families and communities, crops, livestock, alternatives, and policy.

Pest Management in U.S. Agriculture. $18. USDA Economic Research Service report (ERS Handbook No. 717) has a wealth of data based on the 1996 ARMS (Agricultural Resource Management Study) survey. Will serve as a good baseline for various analysts and organizations wanting to project the impacts of GMOs. See http://www.econ.ag.gov/epubs/pdf/ah717, or call 202-694- 5050.

Editor's Note: The following four reviews by Charles Francis are of books published between 1915 and 1999; all have relevance to living in balance with natural resources plus human decisions to create a sustainable future.

Herland and Selected Stories (Charlotte Perkins Gilman, 1992, Signet Classics, N.Y.): The title story originally published in 1915 provides brilliant insight by an early feminist who presents an idealistic view of a utopian, 2000-year-old society of women. Published long before environmental issues and educational reform were hot topics, Gilman explores agroforestry, food production without chemicals, integrating work with pleasure, and how a village can raise the children. I highly recommend *Herland* for the thoughtful reader who wants historical perspective on sustainable agriculture.

Hope, Human, and Wild: True Stories of Living Lightly on the Earth (Bill McKibbon, 1995, Little, Brown & Co., Boston): Best known for *The End of Nature*, McKibbon explains two current models where sustainability is high on the agenda and there is progress toward that goal. In Curitiba, Brazil, the successful efforts of an energetic and forward-thinking mayor have catalyzed the imagination of planners and citizens alike. The result is a beautiful city with viable transport and other public services, support for people of all classes, and progressive industry. In stark economic contrast is the state of Kerala, India, where per capita annual income is $330 per year, yet resources are shared and enhanced for future generations. In contrast to the people-oriented capitalism in Curitiba, the pragmatic communist governments in Kerala since achieving independence have built a a viable society on a limited resource base. McKibbon then applies these lessons from Third World models to his own threatened Adirondack home--and shows clearly that sustainable ideas can come from a wide range of places around the globe.

Believing Cassandra (Alan AtKisson, 1999, Chelsea Green Publ., White River Junction, Vermont): An articulate and light-hearted book about a heavy subject, *Believing Cassandra* urges the reader to take seriously the warnings of those looking into the future. Cassandra, youngest daughter of the last King of Troy, was blessed with the ability to foresee the future, but cursed with the fact that no one would believe her

prophecies. Alan AtKisson carefully distinguishes between the needs to stop Growth, to encourage Development, and to embrace Sustainability. The book is best summarized with a quote: "...we are not talking here about a dull, earnest, melancholy, hair-shirt king of existence, where everyone wears identical tunics and gives thanks for their daily servings of gruel, content with the knowledge that Nature has been protected and the Collective equitably served. A sustainable World, properly understood, is not only an abundant World: it is a wildly diverse and *fascinating* World. This is a World spilling over with opportunities for personal advancement, business development, creative expression, exploration of the unknown. Sustainability is beautiful and reasonable and profitable, all at once. Sustainable solutions come in every imaginable shape and size, reflect every cultural variation, make possible the highest aspirations of individual human beings. Sustainability itself is not Utopia, but something much more realistic and more interesting: it is the process of trying to reach Utopia from a thousand different directions." This is a goal worthy of our attention. The book is available from Chelsea Green Publishing Company, PO Box 428, Gates-Briggs Building #205, White River Junction, VT 05001, 800-639-4099, http://www.chelseagreen.com/Cassandra/index.html.

Changing the Way America Farms: Knowledge and Community in the Sustainable Agriculture Movement, (Neva Hassanein, 1999, Nebraska Press, Lincoln): Who says that doctoral studies always sit on the shelf and gather dust? This exciting book by recent University of Wisconsin graduate Neva Hassanein describes the alternative information network developed by farmers seeking answers to complex, systems-level questions on their farms. She worked with the Ocooch Grazers Network who practice intensive rotational grazing and the Wisconsin Women's Sustainable Farming Network, a group that focuses on farm systems as well as family quality of life. The result is a readable book that provides an attractive direction--farmers taking responsibility for their futures. They show how science can be combined with practical experience, and thus made available in a common language that is accessible to farmers. To order, call 1-800-755-1105, or e-mail press@unlinfo.unl.edu.

Coming Events

Contact CSAS office for more information.

2000

Jan. 5-6 - Mid-America Fruit Growers Conference, St. Joseph, MO

Jan. 7-8 - Great Plains Regional Vegetable Conference, St. Joseph, MO

Jan. 19-22 - 20th Annual Ecological Farming Conference, Pacific Grove, CA, http://www.csa-efc.org/

Jan. 27 - Nebraska Forage and Grassland Council Annual Meeting, Lincoln, NE

Jan. 28-30 - Northern Plains Sustainable Ag Society Annual Conference, Aberdeen, SD

Feb. 2-5 - Aquaculture America 2000: Unmasking the Marvels of Aquaculture, New Orleans, LA, http://www.was.org/confer/neworleans/neworleans.htm

Feb. 11-12 - North American Farmers' Direct Marketing Association Educational Sessions, Cincinnati, OH

Feb. 14-18 - International Conference on Managing Natural Resources for Sustainable Agricultural Production in the 21st Century, New Delhi, India , http://www.nic.in/icar/intconf.html

Feb. 26 - Nebraska Sustainable Agriculture Society Healthy Farms Conference & Annual Meeting, Aurora, NE

Feb. 28-Mar. 2 - International Plant Resistance to Insects Workshop, Fort Collins, CO, http://www.colostate.edu/Depts/bspm/Meetings/ipri.html

Mar. 7-9 - Farming and Ranching for Profit, Stewardship, and Community Conference, Portland, OR, http://wsare.usu.edu/2000/

Mar. 13-16 - Conference on Land Stewardship in the 21st Century: The Contributions of Watershed Management, Tucson, AZ, http://www.srnr.arizona.edu/2000conf/landconf.html

Mar. 27-29 - Soil, Food and People: A Biointensive Model for the New Century, Davis, CA, http://www.universityextension.ucdavis.edu/biointensive/

For additional events, see:

http://www.sare.org/wreg/view_notice_adm.pl

http://www.agnic.org/mtg/

Did You Know...

According to critics, the recently passed agricultural assistance package loosens rules that were intended to target government payments to family-size operations. Chuck Hassebrook, program director of the Center for Rural Affairs in Walthill, Nebraska, is among those who contend that the looser rules will hasten the demise of smaller-scale operations as big farms use the extra cash to buy up land from the neighbors.

The crop value of all horticultural production (including dry beans and potatoes) in Nebraska in 1997 was $160,427,000, an increase of 61% compared to 1992.

Research at Iowa State U. has shown that corn gluten meal has potential as a natural pre-emergence herbicide for use on turf and organic crop production. For details, see http://www.hort.iastate.edu/gluten/.

Among the recommendations in the September 1999 issue of *Consumer Reports* magazine is that "all foods containing genetically engineered ingredients be labeled as such, including milk with recombinant bovine growth hormone," and that the USDA "set a single, national standard for certified-organic food that excludes genetically engineered food from the definition."

The Organic Materials Review Institute has developed a catalog of allowed and regulated products in organic agriculture, and a new seal for organic farmers and processors that identifies the OMRI-approved products that they use in their organic operations. See http://www.omri.org/.

Susan Seacrest of Lincoln, Nebraska, founder and president of The Groundwater Foundation (formerly the Nebraska Groundwater Foundation), was honored by *TIME* magazine for educating the public about the importance of aquifers as a natural resource. Seacrest is one of seven "Heroes for the Planet" profiled in the August 2, 1999 issue of *TIME*. The Foundation has about 2,000 members.

1.4 million acres of rural land is devoured by development each year.

This document is online at:

http://www.ianr.unl.edu/ianr/csas/newsletr/novdec99.htm